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Municipal Wastewater Treatment Works Construction Grants Program

MCD-02.7

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This Handbook contains the replacement pages and policy directives after the Manual of References (MCD-02) was published. This represents the seventh in a series of Program Requirements Memoranda.

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WASHINGTON, D.C. 20460

NOTICE TO ALL HOLDERS OF THE EPA
MUNICIPAL WASTEWATER TREATMENT WORKS
CONSTRUCTION GRANTS PROGRAM MANUAL OF REFERENCES (MCD-02)

Because the material contained in the "Manual of References" is obsolete, further printing and distribution will cease. However, the program policy documents incorporated in that manual, and subsequently updated by the publication of supplemental issuances of new and revised Program Requirements Memoranda (PRMs), will continue to be made available to that segment of the public involved in various aspects of the Construction Grants Program. Hence, holders of the MCD-02 will continue to receive copies of Program Requirements Memoranda (MCD-02.00) as they are printed. So that PRM recipients are kept apprised of the completeness of their policy document library, a full index of PRMs issued will be included with each printing.

Municipal Wastewater Treatment Works
Construction Grants Program

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 29 1978

OFFICE OF WATER AND
HAZARDOUS MATERIALS

Construction Grants
Program Requirements Memorandum
PRM # 78 - 13

SUBJECT: Interim Priority List Guidance for the Development and Management of FY 1979 State Priority Lists

FROM: John T. Rhett, Deputy Assistant Administrator for Water Program Operations (WH 546) John T. Rhett

TO: Regional Administrators

PURPOSE

This memorandum sets forth interim priority list policy for the development and management of FY 1979 State project priority lists for EPA's construction grants program. This interim policy allows for the phase-in of the recently published interim Title II regulations. Final priority list policy concerning priority criteria and the development and management of FY 1980 and subsequent lists is currently being developed and should be issued by the beginning of FY 1979.

DISCUSSION

The recently enacted Clean Water Act and the interim Title II regulations make it necessary to revise many of the procedures for the development and management of State project priority lists set forth in Program Requirements Memorandum #77-7. Immediate changes must be made to meet enforceable requirements, and provide an interface between the priority list and the Needs Survey. Revisions to the systems used to rate and rank projects will be deferred during development of the FY 1979 list to minimize the impact on the State construction grants program. In most cases the FY 1979 changes are not expected to significantly alter currently approved priority systems. The Regions should insure that the FY 79 priority list review process moves expeditiously and that any disruptions in the program be kept to a minimum.

POLICY

1. Submission and review of priority lists. A class deviation has been granted from 40 CFR 35.562 and 35.563 for FY 79 setting June 15, 1978, as the date for submission of the preliminary list, and August 15, 1978, for the final list. Also, a class deviation has been granted from 40 CFR 35.915(a)(1)(iv) and 35.915(c)(2) waiving portions of the information requirements of the new regulation and restriction of consideration of geographical region as a priority rating criteria during FY '79. No priority list is to be accepted as final by the Region until all remaining required and available information has been received for each project and the public participation requirements have been met. Upon receipt of the draft list the Region should immediately enter the information into the Regional Construction Grants Management Information System (RCGMIS) for subsequent review and analysis. The Regional Administrator will review the final State project priority list within 30 days of submission to ensure compliance with the approved State priority system and this policy memorandum. All questionable projects (relating to eligibility and enforceable requirements) must be identified during this 30 day period. The final list is to be generated from RCGMIS and the list in RCGMIS will be considered as the official list for funding and management purposes.

2. Definitions:

- State project priority list - an ordered listing of projects for which Federal assistance is expected during the five-year planning period starting with the beginning of the next fiscal year based on and drawn from the Needs Survey inventory.

- Fundable list - that portion of the State project priority list which contains projects scheduled for award during the first year of the five-year planning period, not to exceed the total funds expected to be available during the year less all applicable reserves. Note that this definition of the fundable list is changed from that set forth in PRM #77-7. The fundable portion of the list no longer relates only to the amount of available funds but rather to the first year (fundable year) of the five-year list. It is conceivable that the fundable list will not contain enough projects to use all available funds because the allotment period of some of the currently available funds extends well beyond the fundable year.

- o Extended list - that portion of the State project priority list containing all projects outside the fundable list that may, under anticipated allotment levels, receive funding during the five-year planning period. For FY 1979 planning, this list is to include the following projects as a minimum:

  - All future Step 3 projects that will be generated from currently active Step 2 projects and Step 2 projects that are included on the fundable list.

  - All future Step 2 and Step 3 projects that will be generated from completed or currently active Step 1 projects and Step 1 projects that are included on the fundable list.

  - All Step 1 projects anticipated to be funded during the first two years of the five-year planning period (and subsequent Step 2 and Step 3 projects that may be funded during the five-year planning period where the timing and scope is apparent).

3. Funding Assumptions. For the purposes of developing the FY 1979 State project priority list it should be assumed that $4.5 billion will be appropriated for each of the next five fiscal years, starting in FY 1979, and such funds will be available on the first day of the fiscal year. It should further be assumed for planning purposes that these funds will be allotted as set forth in Attachment I.

4. Required priority list information. Unless otherwise noted or excepted for FY 1979 the following information is required for all projects on the State project priority list, both fundable and extended portions. The GICS transaction number is included in parentheses and the Region should refer to the GICS data element dictionary for the precise definition of each element.

   - o State assigned EPA project number (TN 01, 54, 03).

   - o Legal name and address of applicant if known (TN 12, 51, 14, 52).

   - o Short project name or description (TN 20).

- Priority rating and rank of each project, based on current priority system (TN H8, 59).

- Project step number (TN 87).

- Relevant Needs authority/facility number (TN 32). This is the unique number assigned in connection with the Needs Survey which identifies the facility and the cognizant WWT authority. If an authority/facility number has not been assigned, enter "NO NUMBER". If multiple facilities are applicable within a single authority, enter the first six positions followed by "XXX". If multiple authorities, then enter the word "MULTIPLE" instead of the nine digit authority facility number. For FY 79, this information is only required for the fundable list.

- Parent project number (i.e., EPA project number for predecessor project) (TN B2).

- For Step 2, 3, or 2+3 projects, code indicating an alternative system for small community (TN 33). Enter "D" if the project is for a highly dispersed section of a larger community or "R" if the project is for a rural community with a population of 3,500 or less. For FY '79 this information is only required for projects on the fundable list. It does not apply for States in which the reserve is not required and has not been voluntarily established.

- For Step 2, 3, or 2+3 projects, that amount (if any) of the eligible cost to apply separately to alternative techniques and innovative processes (TN Y7, Y8). These amounts should not be increased to the full eligible cost even if the project meets the 50% criterion set forth in 40 CFR 35.908(b)(2). For FY '79, this information is required only for the projects on the fundable list. This information is not required on the draft or final priority lists submitted in accordance with the August 15 deadline. This information is necessary, however, to determine utilization of the I/A reserve and must be submitted as a supplement to the priority list no later than December 31, 1978.

- Date project is expected to be certified by State to EPA for funding (TN A5). This date defines whether or not the project is on the fundable or extended portion of the priority list.

- For Step 3 or 2+3 projects, the total eligible cost subdivided by Needs Categories (TN Y0, Y1, Y2, Y3, Y4, Y5, Y6). For FY 79, the State may elect to aggregate into a single lump sum the costs of Categories IIIb (Major Sewer System Rehabilitation), IVa (New Collector Sewers and Appurtances), IVb (New Interceptors and Appurtances), and V (Correction of Combined Sewer Overflows). If this option is chosen, this aggregate cost should be entered in the space on the attached format for Category IIIb and should be marked with an asterisk (*). No entries need be made for any of the other categories (including I, II, and IIIa). Entries may be made in all applicable categories, however, at the option of the State and Region. This information is only required for projects on the fundable list.

- Total eligible cost of the project (TN 29). This information is required for all projects on the State project priority list.

- Estimated EPA assistance (TN H7). This estimated grant amount should include any potential grant amount from the reserve for innovative and alternative technology. Therefore this grant amount may be anywhere between 75% - 85%, depending on the portion of the project eligible for increased funding.

- Enforceable requirement to be satisfied by this project, including (as appropriate) the relevant NPDES number. The enforceable requirements must fall into one of the following categories:

    A -- Project satisfies the conditions or limitations of a 402 or 404 permit which, if violated, could result in the issuance of a compliance order or initiation of a civil or criminal action under Section 309 of the Clean Water Act. (Include permit number(s)).

B -- Permit has not been issued but project satisfies a condition or limitation which would be included in the permit when issued.

C -- Permit is not applicable but project satisfies a requirement anticipated to be necessary to meet applicable criteria for best practicable waste treatment technology (BPWTT).

D -- Project does not meet an enforceable requirement of the Act.

5. Project Bypass. Although readiness for funding may not be used as a priority criterion for rating or ranking projects, the ability to bypass projects not yet ready to proceed according to schedule is an integral part of priority list management. Projects certified by the State and agreed to by the Regions as not ready for funding before the end of the fundable year may be bypassed in favor of the next highest ranked priority projects as long as the approved priority system has a procedure to bypass and reinstate the bypassed projects (under specific conditions), and makes allowance for the public participation provisions. If no formal bypass procedure exists in the current priority system, an interim procedure for FY 79 must be developed by the State and approved by the Region. Projects that are bypassed retain their relative priority rating for consideration on future fundable lists. Projects bypassed will be replaced by the highest ranking priority projects on the extended list that are ready to proceed. Project applicants that are bypassed because they are not ready to proceed must be notified and the State must certify to EPA that these projects will not be ready during the fundable period. Projects that become part of the fundable list must have met all public participation requirements.

6. Priority Systems. Because of the advanced state of development of some State priority lists and the relatively short period of time remaining before the draft lists must be submitted to EPA, any modification necessary to currently approved priority systems should be accomplished through a temporary administrative agreement between the State and the Region. The Regions should attempt to minimize any program disruptions that might be caused by the modification(s) and assure that these agreements are negotiated expeditiously. For FY '79 only, States may continue to consider geographic region within the State in developing the priority list, provided this criteria is already part of their currently approved priority system. In FY 80, the State may not consider geographic region as part of their priority system.

7. Public Participation. FY 79 public hearings, if any, held for priority system revision may be conducted jointly with the hearing for the FY 79 priority list. No project may be funded unless it has met the public participation requirements.

8. Priority List/Needs Survey Relationship. The State project priority list should be derived from and be consistent with the State Needs Inventory prepared in accordance with Section 516(b)(1)(B) of the Clean Water Act. The "Relevant Needs Authority/Facility Number" described above provides the direct linkage between the priority list and the Needs Survey.

9. Priority List Update. Because of the new definition of the fundable list, the target certification dates and estimated grant amount for projects on the fundable and extended lists must be kept current at all times. At a minimum, a complete review of the priority list, including the extended portion, should be performed on a quarterly basis. Any changes to the list should be immediately entered into RCGMIS. Regions should assure that all bypass provisions and public participation requirements have been met whenever changes are made to the priority lists.

10. 25% Provision for Projects in Categories IIIb (Sewer System Replacement or Major Rehabilitation), IVa (New Collectors and Appurtenances), IVb (New Interceptors and Appurtenances), and V (Correction of Combined Sewer Overflows). All projects or parts of projects on the fundable priority list including these categories will be reviewed by the Regional Administrator to determine if they meet enforceable requirements of the Act. Projects which meet the enforceable requirements will be eligible for funding. Projects in these categories that do not meet enforceable requirements will be further examined in the order of the lowest ranked project first. This review process will continue until the aggregate of projects in these categories that do not meet the enforceable requirements of the Act, but are deemed necessary for pollution control, total not more than 25 percent of the allotment for each State.

11. Management of Priority List Reserves that are Subject to Reallotment if not used for their intended purpose. Regions should assure that sufficient projects appear on the fundable list to fully utilize the reserve for innovative and alternative technology grant increases and the reserve for alternative systems for small communities before these funds are lost to reallotment. To accomplish this objective 40 CFR 35.915(a)(1)(iii) states that higher priority may be granted to those Step 2 and combined Step 2+3 projects utilizing processes and techniques meeting the innovative and alternative guidelines. Size of community (according to 40 CFR 35.915-1(e)) may be used to establish a higher priority for projects which can be funded to preclude any potential loss of the reserved funds.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 23 1978

Construction Grants
Program Requirements Memorandum
PRM No. 79-1

Subject: Safety Requirements for the Design and Operation of Chlorination Facilities Using Gaseous Chlorine

From: John T. Rhett, Deputy Assistant Administrator for Water Program Operations (WH-546)

To: Regional Administrators (I-X)
Attn: Water Division Directors

Purpose:

This memorandum establishes the policy pertaining to safety requirements for the design and operation of chlorination facilities utilizing gaseous chlorine.

While many engineering considerations and operational practices with regard to chlorine handling are site specific, a number of significant design specifications and operational procedures should be required as minimum acceptable practice. There are numerous publications that provide detailed information pertaining to this subject, including those listed in Attachment B. This memorandum provides guidelines and general principles to be used in the design and operation of chlorination facilities using gaseous chlorine.

Discussion:

Gaseous chlorine refers to chlorine purchased in its elemental form, occurring in the gaseous or liquid state. It is supplied commercially in pressurized containers sized to contain either 100 pounds, 150 pounds or 2,000 pounds of chlorine. In addition, chlorine can be purchased in single unit and multi-unit railroad tank cars, as well as tank trucks.

Chlorine is a respiratory irritant, and under conditions of sufficient concentration and exposure, can cause death by suffocation. Chlorine, especially when combined with even small amounts of water, is highly corrosive, and can cause severe burns when brought into contact with skin and eyes. Unfortunately, the toxic and corrosive effects of chlorine were recently demonstrated by the two publicized railroad tank car derailments and their subsequent after effects.

The on-going construction grants program will continue to generate significant construction of wastewater treatment facilities throughout the country. Chlorination continues to represent the most commonly used method of disinfection for sewage, and consequently many new treatment facilities will include provisions for chlorinating treated effluent prior to discharge. As a result, a major part of EPA's overall responsibility is ensuring that safe chlorination practices are implemented.

EPA policy is designed to ensure that:

1. Chlorination systems are designed to prevent chlorine leaks and to minimize operator and local resident exposure should leaks occur.

2. Chlorine leaks that do occur are handled safely, quickly, and with minimal environmental exposure.

Policy:

Attachment A is guidance for the design and operation of safe chlorination facilities. It is intended that in reviewing plans and specifications and operation and maintenance manuals for those projects incorporating chlorination processes, Sections I and II of Attachment A be used as a technical guide and basis for minimum adequacy in safety considerations. The information contained in the guidance was developed to serve as part of the overall criteria applicable to the design and operation of such facilities. While it is believed that complying with the guidance will substantially reduce chlorine hazards which can be potentially dangerous to plant personnel and nearby residents, it is recommended that the guidance in this PRM be used to supplement other applicable information on chlorination facilities.

Implementation:

The measures specified in this memorandum are required for all projects that have not yet received Step 3 grants by the date of this memorandum. In addition, projects that have already received Step 3 grants should incorporate the sections under operation and maintenance in the O&M manual. Where practical, current Step 3 projects should be encouraged to make revisions to their designs to comply with the measures specified herein.

Attachments

ATTACHMENT A

Procedure for the Safety in the Design and Operation of Chlorine Facilities

This guidance contains a detailed procedure which represents good engineering practices for the safety in the design and operation of chlorination facilities. Because it is not the intent of the guidance to modify or replace any appropriate safety requirements and regulations published by the Occupational Safety and Health Administration (OSHA), it is recommended that the guidance be used to supplement the OSHA and any other appropriate safety requirements.

I. Design of Gaseous Chlorine Facilities

A. If gas chlorination equipment and chlorine cylinders are to be installed or stored in a building used for other purposes, a gas-tight partition should separate the chlorination room from any other portion of the building. Doors to this room should open only to the outside of the building, and should be equipped with panic hardware. Such rooms should be at ground level, and should permit easy access to all equipment; the chlorine storage area(s) should be separated from the chlorine feed area(s).

B. A clear glass, gas-tight window should be installed in an exterior door or interior wall of the chlorination room to permit the chlorinator(s) to be viewed without entering the room.

C. Chlorination rooms should be equipped with heating and ventilating equipment designed to maintain the room(s) containing the chlorine containers at approximately 18-21°C (65-70°F) and the room(s) containing the chlorinator feed equipment at a temperature of 5-10°F higher.

D. Containers (except insulated rail or cargo tanks) should be shielded from direct sunlight or from overheating above 60°C (140°F) any source, either while in storage or in use. Pairs of level rails or properly designed cradles should be provided for storing one ton cylinders.

E. Forced mechanical ventilation should be included that will provide a complete air change at least every 1-4 minutes. Because chlorine gas is heavier than air, location of air inlets and outlets should be carefully considered to ensure that the entire room will be thoroughly ventilated. For example, in the exhaust ventilation system, the exhaust outlet should be located near the floor, with the discharge being positioned outside of the building at a point where it will not contaminate the air inlet to any buildings or inhabited areas. The fresh air inlet should be located at the opposite end of the room from the exhaust outlet, to facilitate complete air replacement.

F. Exhaust equipment should be automatically activated by external light switches. That is, an operator should be able to turn the lights on outside of the chlorination room and thereby activate the ventilation system prior to entering the enclosed area. Other automatic systems, including door-activated mechanisms, should also be considered.

G. Emergency showers and eye baths should be located near, but external to, the chlorination facilities.

H. For facilities having a design hydraulic capacity of five million gallons per day or more, an automatic chlorine detection system should be included as part of the chlorination facility. The detection system should sound alarms and activate flashing lights that are audible and visible within the POTW. Connection of the alarm system to the local police station, POTW operator's area, or both, is also recommended where practical. Consideration of such detection and alarm systems should also be given in the case of smaller facilities, where the potential benefits are sufficient to warrant the additional cost and associated increase in operational complexity.

II. Operation and Maintenance

The following procedures should be included in operation and maintenance manuals for treatment facilities which incorporate chlorination processes. While the following criteria are related primarily to the operation and maintenance of chlorination systems, they should also be read in the context of their applicability to the design of treatment plants.

A. Loading and Unloading of Chlorine

1. DOT regulations (174.560) provide that single-unit railroad tank cars must be unloaded on a private track. This requirement applies to all EPA supported projects.

2. Whenever practicable, single and multi-unit tank cars should be delivered at a deadend siding(s) used only for chlorine delivery, with insurance that the tracks are level. The car(s) should be protected by a locked derail, a closed and locked switch, or preferably both.

3. Railway flat cars delivering one ton containers should also be delivered on a special siding assigned to chlorine unloading only.

4. Chains, rope slings, or magnetic hoists should never be used. When cylinders are to be lifted, forklift trucks or hoisting equipment with special cradles or carriers designed for chlorine equipment should be utilized.

5. Tank barge unloading facilities should be in compliance with the Army Corps of Engineers and Coast Guard Regulations.

B. Handling of Chlorine Containers

1. One ton cylinders should be stored on properly designed cradles or pairs of level rails. Chocks should be placed to prevent the containers from rolling when unattended.

2. 100 and 150 pound cylinders should be secured with safety chains in storage and during transport.

3. Containers should never be piled on top of one another.

4. Containers should be stored in a manner that will prevent them from being hit by vehicles or other heavy objects.

5. Chlorine should not be stored with other compressed gases.

6. Empty containers should be so tagged, and should be stored separately from full containers.

7. Cylinders should be used in the order in which they are received, to prevent valve packing from becoming dry and developing leaks.

8. Only approved tools designed for use with chlorine containers should be used. For example, hand trucks specifically designed for 100 and 150 pound cylinders should be used instead of rolling them on the rim.

9. Chlorine cylinder emergency repair kits should be readily available.

C. Leak Detection and Emergency Procedures

1. Each POTW should have a formal written set of emergency procedures that includes the items discussed below, prior to startup of the chlorination facilities. In addition, operator's manual must include pre-planned procedures in the event of a catastrophic leak or container rupture.

2. Self-contained positive pressure helmets, with their own compressed air supply and full facepiece, should be available for emergency use. The canister type gas mask is specifically <u>not</u> recommended. The helmets should be located at readily accessible points, away from the area(s) likely to be contaminated with chlorine gas. Spare air supply cylinders should also be on site for use during prolonged emergencies.

Helmets and breathing air supply tanks should be routinely inspected and maintained in good condition. They should be cleaned after each use, and also cleaned routinely at regular intervals. When needed, air supply tanks should be refilled at stations where proper air compressor equipment is used to filter out oil in a contaminated air environment.

Specifications for properly designed positive pressure helmets for chlorine service can be obtained from the U.S. Bureau of Mines, OSHA, or NIOSH. In addition, potential users of these helmets, as well as users of other emergency equipment, should have formal training in their use and should also be required to have regular practice sessions.

3. A strong solution of aqueous ammonia (18° Baume or higher) should be available for use in locating the source of leaks. Dense white clouds of ammonium chloride are formed by the reaction of the ammonia and chlorine, thus confirming the source of the chlorine leak.

4. Repair of any chlorine leaks should be performed by at least two people wearing self-contained air breathing equipment. If such repairs must be made below grade, persons entering the area must also wear safety harnesses which are connected to ropes extending to a higher level where additional people are stationed to assist in emergency rescue operations.

5. Piping and valves in chlorine rooms should be color coded and properly labeled for rapid identification.

6. If a container is leaking chlorine, it should be turned, if possible, so that gas instead of liquid escapes. The quantity of chlorine that escapes from a gas leak is about one-fifteenth the amount that escapes from a liquid leak through the same size hole.

7. If possible, a leaking container should be moved to an isolated spot where it will do the least harm.

8. Never immerse or throw a leaking chlorine container into a body of water. The leak will be aggravated and the container may float when still partially full of liquid chlorine, allowing gas evolution at the surface.

9. Emergency kits should be readily available for the quick repair of chlorine leaks. Information on emergency kits is available from the Chlorine Institute, New York, NY (see Reference 1).

10. In the event of an emergency, technical assistance can be obtained by calling CHEMTREC (Manufacturing Chemists Association, Chemical Transportation Emergency Center) at 800/424-9300. This is a 24-hour toll-free service.

ATTACHMENT B

REFERENCES

1. "Chlorine Manual," The Chlorine Institute, Inc. 342 Madison Avenue, New York, NY, December, 1972.

2. "WPCF Manual of Practice No. 1 - Safety in Wastewater Works," Water Pollution Control Federation, 1975.

3. "WPCF Manual of Practice No. 4 - Chlorination of Wastewater," Water Pollution Control Federation, 1976.

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7. "Standards for Waste Treatment Works, Municipal Sewerage Facilities," New York State Department of Environmental Conservation, 1970.

8. "Chlorine Handbook," Diamond Shamrock Chemical Company, 1976.

9. "Dow Chlorine Handbook," Dow Chemical U.S.A., 1975.

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12. "Hazardous Materials Regulations of the Department of Transportation, Including Specifications for Shipping Containers," R.M. Grazianos Tariff Publishing.

13. "Chlorine Detector Saves a Life," Public Works, March, 1978.

14. "Safe Handling of Compressed Gases and Containers," Compressed Gas Association, Inc., 1974.

15. "Supplement to Federal Guidelines: Design, Operation and Maintenance of Wastewater Treatment Facilities," Technical Bulletin No. D-71-1, U.S. Environmental Protection Agency, September, 1970.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 13 1978

OFFICE OF WATER AND
HAZARDOUS MATERIALS

CONSTRUCTION GRANTS
PROGRAM REQUIREMENTS MEMORANDUM
PRM No. 79-2

SUBJECT: Royalties for Use of or for Rights in Patents

FROM: John T. Rhett, Deputy Assistant Administrator for Water Program Operations (WH-546)

Frances E. Phillips, Associate General Counsel Grants, Contracts and General Administration (A-134)

To: Regional Administrators
Attn: Water Division Directors

Purpose

This memorandum sets forth Agency policy and procedures concerning the allowable cost associated with the procurement of the right to use, or the rights in, a patented product, apparatus or process which is necessary for the proper performance of a construction grant agreement or subagreement thereto.

Discussion

Questions have been raised about the allowability of royalties for the use of or for rights in patents. Royalties are itemized costs or charges in the nature of patent royalties, license fees, patent or license amortization costs, or the like. Such royalties are paid to a patent licensor either by the grantee or by a contractor, who in turn separately charges the grantee for this actual cost.

This memorandum addresses the payment of royalties during the construction of the waste treatment works, as distinguished from the grantee's periodic payment of royalties for the right to operate under a patent. Periodic payments are operating costs and are not within the purview of this memorandum. Any part of a license fee, beyond a mere royalty, which can be attributed to services rendered by the licensor is also beyond the purview of this memorandum.

There are at least two occasions when the grantee may be obligated to pay a royalty for the use of or for rights in patents:

1. The treatment works design includes a patented product, apparatus, or process, or

2. A patented product, apparatus or process may be necessary for the proper performance of a subagreement to a construction grant.

Policy

Royalties for the use of or for rights in patents, are allowable costs within the limits of the principles and procedures contained herein.

Implementation

1. The grantee shall report to the EPA Project Officer, with copies for the EPA Regional Counsel, the following information, if applicable, for each item of royalty in excess of $1,000 which the grantee will be obligated to pay as an actual cost:

a. Name and address of licensor;

b. Date of license agreement;

c. Patent Numbers;

d. Brief description, including any part or model numbers of each contract product, apparatus or process which the separate royalty is payable;

e. Percentage or dollar rate or royalty per unit or other method of determining the royalty;

f. Unit price of contract items;

g. Number of units;

h. Total dollar amount of royalties; and

i. Current license agreements.

2. Prior to selecting a patented product, apparatus, or process for the treatment works, on which an item of royalty must be paid, the grantee must consider:

a. The necessity and reasonableness of the royalty.

b. The royalty in any cost-effective analysis and as an evaluation factor in any bid analysis;

c. The use of performance type specifications for competitive procurement of a royalty-free product, apparatus or process; and

d. The use of Step 3 bid alternatives to each proposed patented product, apparatus, or process on which a royalty must be paid.

3. The grantee shall obtain and submit to the EPA Project Officer, with copies for the EPA Regional Counsel, as soon as the patented product, apparatus or process, on which a royalty must be paid, has been proposed in the facilities plan or design, a copy of the proposed license agreement.

4. Royalties on a patent necessary for the proper performance of the grant agreement or any subagreement thereto and applicable to grant products, apparatus or processes, are allowable unless:

a. The Federal government has title to the patent or a royalty fee license with the right to sub-license the grantee;

b. The patent has been adjudicated to be invalid, or has been administratively determined to be invalid by an Agency of the Federal government;

c. The patent or license agreement is considered to be unenforceable by the grantee or an Agency of the Federal government;

d. The patent either has expired or will expire prior to the incurrence, by the grantee, of any possible infringement liability.

e. The grantee has received from a patent attorney, an opinion that the patent is either not infringed or invalid.

5. The grantee shall determine whether any of the circumstances of paragraph 4 above exist. The grantee may also be advised by EPA to make a study of the validity, infringement or other aspects relating to the enforceability of the patent. All costs incurred by the grantee in making the required determinations and studies will be allowable. provided that prior approval of the anticipated costs has been received from the EPA Project Officer, with the advice of the EPA Patent Counsel, Office of General Counsel. Written reports of such determinations and studies shall be submitted to the EPA Project Officer, with copies for the EPA Regional Counsel.

6. If the implementation of the facilities plan would obligate the grantee to the payment of royalties for the use of or rights in patents in excess of $5,000, the grantee's public hearing, held in accordance with 40 CFR 35.917-5, shall include a discussion of the proposed or selected patented product, apparatus or process, and afford concerned commercial interests adequate opportunity to express their views.

7. Special care should be exercised by the grantee in determining reasonableness of the royalties where they may have been arrived at as a result of less than arm's length bargaining; e.g.:

a. Royalties to be paid to persons, including corporations, affiliated with the party requiring payments of such royalty or license fee;

b. Royalties to be paid to unaffiliated parties, including corporations, under an agreement between the person requiring payment and the patent licensor which was entered into in contemplation that the EPA grant or grantee's contract would be awarded; or

c. Royalties to be paid under an agreement between the person requiring payment and the patent licensor which was entered into after the award of the grant by EPA or the contract by the grantee.

8. In any case involving a patent formerly owned by the grantee's contractor, the amount of royalty allowed will not exceed the cost which would have been allowed had the contractor retained title thereto.

9. The royalty shall not exceed the lowest rate at which the licensor has offered or licensed a public or private entity.

10. When negotiating the royalty, the grantee should consider the technical and financial risk that they must assume and the future commercial benefits that may accrue to the licensor as a result of the grantee's utilization of the patent.

11. EPA payment will normally not be made on a royalty until Step 3. Certain exceptions should be allowed when the use of a patented product, apparatus, or process is necessary for the proper performance of the grant agreement, or a subagreement, during Step 1 or 2. The grantee's license or other agreement whereby the grantee was obligated to pay a royalty, must be submitted with the request for EPA payment. If the grantee's payment is made to a licensee, a copy of that licensee's agreement with its licensor must be submitted with the request for EPA payment.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 15 1978

CONSTRUCTION GRANTS
PROGRAM REQUIREMENTS MEMORANDUM
PRM 79-3

SUBJECT: Revision of Agency Guidance for Evaluation of Land Treatment Alternatives Employing Surface Application

FROM: Thomas C. Jorling, Assistant Administrator
Water and Waste Management (WH-556)

TO: Regional Administrators (Regions I thru X)

I. PURPOSE

This memorandum consolidates and updates Agency policy and guidance for evaluation of land treatment alternatives using slow rate, rapid infiltration, or overland flow processes in the Construction Grants Program. It provides guidance on the extent and nature of material to be included in facility plans to ensure that these land treatment alternatives have been given thorough evaluation.

II. DISCUSSION

Evaluation of land treatment in facilities planning has been mandatory under PL 92-500 (the Act) since July 1, 1974. The EPA construction grants regulations as published in the Federal Register vol. 39, no. 29, February 11, 1974, provided for coverage of land application techniques in facility planning [35.917-1(d)(5)(iii)]. Three land application (land treatment) techniques were included in the description of alternative techniques for best practicable treatment published in October 1975. Many other technical information bulletins, PGM's, and PRM's have been issued as guidance for the evaluation of land treatment alternatives in the Construction Grants Program.

This approach was used to provide the latest information available to the Regional Offices with a minimum of delay. While the objective of timely distribution of technical information and guidance has been achieved, this piecemeal distribution has also resulted in some disparities in the interpretation and implementation of policy.

Distribution of the Process Design Manual for Land Treatment of Municipal Wastewater (EPA 625/1-77-008) consolidates most of the technical information on surface application approaches into a single reference source. This consolidation of technical information provides a sound basis from which to establish more consistent and effective implementation of Agency policy on land treatment alternatives using the slow rate, rapid infiltration, or overland flow processes.

In the process of coordinating with the Regions on specific projects involving land treatment, OWPO staff has had the opportunity to review a number of selected facility plans with respect to their handling of land treatment alternatives. In addition to providing information pertinent to the specific projects being evaluated, this review has been used to determine what, if any, changes in guidance are needed to achieve more consistent and complete evaluation of land treatment alternatives. Areas being considered include technical assistance and staff training as well as revision of guidance documents.

The results of this review to date show that land treatment technologies have had and continue to have inadequate assessment in many instances. In addition and for substantially more cases, detailed coverage of land treatment has missed the mark for a variety of reasons. Three of the frequently encountered reasons are: (1) overly conservative and, consequently, costly design of slow rate (irrigation) systems, (2) failure to consider rapid infiltration as a proven and implementable land treatment alternative, and (3) provision for a substantially higher and more costly level of preapplication treatment than is needed to protect public health and ensure design performance.

Such inadequate assessment of land treatment alternatives has led to rejection of land treatment in cases where it appears that a thorough assessment would identify less costly alternatives utilizing the recycling and reclamation advantages of land treatment. Consistent with the revised construction grants regulations resulting from enactment of PL 95-217, award of Step 1 grants and subsequent approval of facility plans must ensure that the selected alternative is cost-effective and emphasizes energy conservation and recycling of resources. This is important both to meet the statutory requirements of the law and to provide the maximum pollution control benefits attainable with the funds allocated to the Construction Grants Program.

The Administrator's memorandum of October 3, 1977, emphasizes that the Agency grants program will include thorough consideration of land treatment as compared to conventional treatment and discharge to surface waters.

This program requirements memorandum is designed to consolidate the existing base of guidance into a uniform but still flexible set of guidelines for slow rate, rapid infiltration, and overland flow systems. This should improve our capability to effectively and consistently implement the Agency policy on recycling and reclamation through land treatment alternatives.

III. POLICY

The Administrator's memorandum of October 3, 1977 (Attachment A) spells out three major points of policy emphasis on land treatment of municipal wastewater as follows:

1. The Agency will press vigorously for implementation of land treatment alternatives to reclaim and recycle municipal wastewaters.

2. Rejection of land treatment alternatives shall be supported by a complete justification (reason for rejection shall be well documented in the facilities plan).

3. If the Agency deems the level of preapplication treatment to be unnecessarily stringent, the costs of achieving the excessive level of preapplication treatment will not be considered as eligible for EPA cost sharing when determining the total cost of a project.

These points highlight the Agency's role in implementing the legislative mandates of PL 92-500 and PL 95-217. PL 92-500 required EPA to encourage waste treatment management that recycles nutrients through production of agriculture, silviculture, or aquaculture products. PL 95-217 re-emphasizes the intent to encourage innovative/alternative systems including land treatment with many tangible incentives including (1) the "115%" cost preference, (2) 85% Federal grants with the specific set asides, (3) the eligibility of land for storage, and (4) 100% grants for modification or replacement if project fails to meet design criteria. It is imperative that the Agency moves positively and uniformly to implement land treatment which is clearly identified as an innovative/alternative technology which recycles nutrients and conserves energy in conjunction with wastewater management.

IV. IMPLEMENTATION

The guidance detailed in this PRM will apply to all facility planning grants (Step 1) awarded 30 days after the date of this PRM. In addition it should be applied on a case-by-case basis to those unapproved facility plans for which it appears that further assessment of land treatment alternatives could result in: (1) the timely and effective implementation of a reclamation and recycling alternative; and (2) benefits to the applicant while making better use of EPA construction grant funds.

A. Action Required

Facility plans in which land treatment alternatives are eliminated with only cursory coverage will be rejected as not fulfilling Agency requirements. A facility plan should not be approved until the coverage of these land treatment alternatives satisfies the guidance detailed

below. As a minimum, the coverage of these land treatment processes will include assessment of at least one slow rate (irrigation) alternative and one rapid infiltration alternative. Coverage of an overland flow alternative will be optional (case-by-case) until additional information which is presently being developed furnishes design information for routine construction grant implementation. The technical design basis of these land treatment alternatives will be in accordance with the "EPA Design Manual on Land Treatment" (EPA 625/1-77-008), and "Costs of Wastewater Treatment by Land Application" (EPA 430/9-75-003). To be adequate, coverage of these land treatment alternatives shall include enough detail to support development of costs, except in those cases where thorough screening for available sites shows no suitable sites within economic transport distances. Designs for slow rate systems and rapid infiltration systems will include preapplication treatment which is in accord with the discussion of preapplication in the Design Manual (pages 5-26 thru 5-30) and summarized in Attachment B.

A universal requirement to reduce biochemical oxygen demand and suspended solids to 30 mg/l and to disinfect to an average fecal coliform count of 200/100 ml will be considered as excessively stringent preapplication treatment if specified for all land treatment alternatives. States shall be requested to reconsider use of such universal and stringent preapplication treatment requirements when it is established that a lesser level of preapplication treatment will protect the public health, protect the quality of surface waters and groundwater, and will ensure achievement of design performance for the wastewater management system.

States should be encouraged to adopt standards which avoid the use of uniform treatment requirements for land treatment systems, including a minimum of secondary treatment prior to application to the land. The EPA guidance on land treatment systems specifies ranges of values and flexible criteria for evaluating factors such as preapplication treatment, wastewater application rates and buffer zones. For example, simple screening or comminution may be appropriate for overland flow systems in isolated areas with no public access, while extensive biochemical oxygen demand and suspended solids control with disinfection may be called for in the case of slow rate systems in public access areas such as parks or golf courses.

B. Specific Guidance

The scope of work for preparation of a facility plan will provide for thorough evaluation of land treatment alternatives. This evaluation of land treatment alternatives may be accomplished in a two-phase approach. Such a two-phase approach would provide flexibility for establishing general site suitability and cost competitiveness before requiring extensive on-site investigations. The first phase of the two-phase approach would include adequate detail to establish whether or not sites are available, wastewater quality is suitable, and land treatment is

cost competitive. The second phase would include in-depth investigation of sites and the refinement of system design factors to complete all of the requirements for preparing a facility plan. Approval of a facility plan will ensure that the following details for evaluation of land treatment are clearly delineated in the plan.

1. Site Selection. A regional map shall be included to show the tracts of land evaluated as probable land treatment sites. The narrative discussion of site evaluation should detail the reasons for rejection of tracts as well as the availability of tracts used in the preliminary design for land treatment alternatives. Table 2-2 of the Design Manual (Attachment C) delineates general site characteristics for land treatment alternatives which the narrative should cover in detail.

Categorical elimination of land treatment for lack of a suitable site (during phase one of a two-phase evaluation) should be documented with support materials showing how the applicant made the determination. For example, elimination for lack of suitable soils should be documented with soils information from the area Soil Conservation Service representatives or other soil scientists who may be available. Any categorical elimination of land treatment should demonstrate that additional engineering necessary to overcome site constraints would make the alternative too costly to fund in accordance with the cost-effectiveness requirements of the law.

2. Loading Rates and Land Area. The values for these parameters evaluated in the facility plan should concur with the technically established ranges for application rates and land area needed for a system. The cost of land treatment is sensitive to these factors and overly conservative design unduly inflates the cost of technically sound alternatives. Designs in a facility plan should fall within the general ranges given in Table 2-1 and Figure 3-3 of the Design Manual. Designs falling outside of these ranges should do so only because of extenuating circumstances peculiar to the site. These extenuating circumstances should be discussed in detail. Table 2-1 (Attachment B) is recommended as a quick reference for determining that designs are reasonable.

3. Estimated Costs. The estimated costs of land treatment alternatives should be comparable to those obtained by using EPA 430/9-75-003 pages 59-127, updated using local construction cost indices. Cost estimates generated by using this source are being compared to actual costs for recently constructed facilities. If this comparison shows that the curves in EPA 430/9-75-003 need adjustment, corrected curves will be made available as necessary.

Elimination of land treatment in the cost-effective analysis because of land costs or transport costs should be documented by means of an actual evaluation for the cost of land or cost of

transport. This evaluation should show clearly that the cost of land or the cost of transport does rule out land treatment using the approach shown in "Cost-Effective Comparison of Land Application and Advanced Wastewater Treatment" (EPA 430/9-75-016). Examples on pages 23-24 (Attachment D) of that source show how to make these comparisons.

4. Preapplication Treatment. The level of preapplication treatment prior to storage or actual application to the land should be in accordance with the guidance given for screening wastewaters to be applied to the land in the Design Manual. A universal minimum of secondary treatment for direct surface discharge as published in the August 17, 1973 Federal Register and later modified (Federal Register July 26, 1976 and October 7, 1977) will not be accepted because it is inconsistent with the basic concepts of land treatment. Imposition of a defined discharge criteria at an intermediate point in a treatment train is, in most instances, an unnecessarily stringent preapplication treatment requirement as stated in the Administrator's memorandum dated October 3, 1977. Criteria imposed at an intermediate point should be for the purpose of ensuring overall system performance in the same context that primary sedimentation precedes biological secondary treatment by trickling filter or activated sludge processes.

Assessment of the level of preapplication treatment proposed should be in accord with the discussion in Section 5.2 (pages 5-26 to 5-30) of the Design Manual. Guidelines for evaluating the level of preapplication for slow-rate, rapid infiltration, and overland flow systems in relation to existing state regulations, criteria and guidelines are included in Attachment E. Preapplication treatment criteria more restrictive than the ranges of treatment levels described in Appendix E will be considered unnecessarily stringent unless justified on a case-by-case basis. When the more stringent preapplication treatment criteria cannot be justified, the EPA will consider that portion of the project to meet EPA guidance as eligible for Agency funding. The costs of the additional preapplication increment needed to meet more stringent preapplication treatment requirements imposed at the state or local level would be ineligible for Agency funding and thus would be paid for from state or local funds.

5. Environmental Effects. Assessing the environmental effects of land treatment alternatives involves a somewhat different concept than for conventional treatment and discharge to surface waters. The assessment for land treatment should include emphasis on the quality and quantity of both surface and groundwater resources; on energy conservation as well as energy demands; on pollutant (resource) recycling as well as chemical needs, and on land use in the overall coverage of environmental effects.

The assessment should determine that the proposed land treatment system is in accord with Agency policy on groundwater protection. The Agency policy for groundwater resulting from land treatment systems is set forth in the criteria for Best Practicable Waste Treatment Technology (BPWTT). These criteria specify that the groundwater resulting from a land treatment system must meet different requirements depending on current use and quality of the existing groundwater. The basic thrust of these criteria is to protect groundwater for drinking water purposes by specifying adherence to the appropriate National Primary Drinking Water Standards. The BPWTT criteria further require land treament systems which are underdrained or otherwise designed to have a surface discharge to meet the standards applicable to any treatment and discharge alternative. The criteria are fully described in 41 FR 6190 (February 11, 1976) which is attached as Appendix F.

An overall Agency policy statement on groundwater protection is scheduled for issuance in the near future. The draft Agency groundwater policy is generally consistent with present criteria for land treatment systems. However, any revisions to the present guidance on site evaluation and system monitoring as a result of this statement will have to be accounted for as they are developed. In the meantime, existing guidance should be used to evaluate groundwater influences.

Attachments

V. REFERENCES

Process Design Manual for Land Treatment of Municipal Wastewater EPA 625/1-77-008 October, 1977.

October 3, 1977 memorandum from Administrator:"EPA Policy on Land Treatment of Municipal Wastewater".

"Cost of Wastewater Treatment by Land Application" Technical Report EPA-430/9-75-003 June, 1975.

"Cost-Effective Comparison of Land Application and Advanced Wastewater Treatment" Technical Report EPA-430/9-75-016, November, 1975.

Secondary Treatment Information Federal Register 38(129), August 17,, 1973, pgs 22298-22299.

Secondary Treatment Information Federal Register 41(1440, July 26, 1976, pp. 30786-30789.

Suspended Solids Limitations Federal Register 42(195), October 7, 1977, pp. 54664-54666.

Water Quality Criteria 1972 EPA-R3-73-033, March 1973, pp. 323-366.

Quality Criteria for Water, USEPA, July, 1976.

Alternative Waste Management Techniques for Best Practicable Waste Treatment EPA 430/9-75-013, October, 1975.

Final Construction Grants Regulations Federal Register 39, No. 29 February 11, 1974.

VI. ATTACHMENTS

Attachment A	Administrator's Oct. 3, 1977 memo "EPA Policy on Land Treatment of Municipal Wastewater"
Attachment B	Table 2-1 from Design Manual
Attachment C	Table 2-2 from Design Manual
Attachment D	Pages 23-24 from EPA 430/9-75-016
Attachment E	Guidance for assessing level of preapplication
Attachment F	Alternative Waste Management Techniques (BPWTT)

ATTACH .T A

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 3 1977

THE ADMINISTRATOR

SUBJECT: EPA Policy on Land Treatment of Municipal Wastewater

FROM: The Administrator

TO: Assistant Administrators and
Regional Administrators (Regions I-X)

President Carter's recent Environmental Message to the Congress emphasized the design and construction of cost-effective publicly owned wastewater treatment facilities that encourage water conservation as well as adequately treat wastewater. This serves to strengthen the encouragement under the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) to consider wastewater reclamation and recycling by land treatment processes.

At the time P.L. 92-500 was enacted, it was the intent of Congress to encourage to the extent possible the development of wastewater management policies that are consistent with the fundamental ecological principle that all materials should be returned to the cycles from which they were generated. Particular attention should be given to wastewater treatment processes which renovate and reuse wastewater as well as recycle the organic matter and nutrients in a beneficial manner. Therefore, the Agency will press vigorously for publicly owned treatment works to utilize land treatment processes to reclaim and recycle municipal wastewater.

RATIONALE

Land treatment systems involve the use of plants and the soil to remove previously unwanted contaminants from wastewaters. Land treatment is capable of achieving removal levels comparable to the best available advanced wastewater treatment technologies while achieving additional benefits. The recovery and beneficial reuse of wastewater and its nutrient resources through crop production, as well as wastewater treatment and reclamation, allow land treatment systems to accomplish far more than most conventional treatment and discharge alternatives.

The application of wastewater on land is a practice that has been used for many decades; however, recycling and reclaiming wastewater that may involve the planned recovery of nutrient resources as part of a designed wastewater treatment facility is a relatively new technique. One of the first such projects was the large scale Muskegon, Michigan, land treatment demonstration project funded under the Federal Water Pollution Control Act Amendments of 1966 (P.L. 84-660), which began operations in May 1974.

Reliable wastewater treatment processes that utilize land treatment concepts to recycle resources through agriculture, silviculture and aquaculture practices are available. The technology for planning, designing, constructing and operating land treatment facilities is adequate to meet both 1983 and 1985 requirements and goals of P.L. 92-500.

Land treatment is also presently in extensive use for treatment of many industrial wastewaters, particularly those with easily degraded organics such as food processing. Adoption of suitable in-plant pretreatment for the removal of excessive metals and toxic substances would expand the potential for land treatment of industrial wastewater and further enhance the potential for utilization of municipal wastewater and sludges for agricultural purposes.

APPROACH

Because land treatment processes contribute to the reclamation and recycling requirements of P.L. 92-500, they should be preferentially considered as an alternative wastewater management technology. Such consideration is particularly critical for smaller communities. While it is recognized that acceptance is not universal, the utilization of land treatment systems has the potential for saving billions of dollars. This will benefit not only the nationwide water pollution control program, but will also provide an additional mechanism for the recovery and recycling of wastewater as a resource.

EPA currently requires each applicant for construction grant funds to make a conscientious analysis of wastewater management alternatives with the burden upon the applicant to examine all available alternative technologies. Therefore, if a method that encourages water conservation, wastewater reclamation and reuse is not recommended, the applicant should be required to provide complete justification for the rejection of land treatment.

Imposition of stringent wastewater treatment requirements prior to land application has quite often nullified the cost-effectiveness of land treatment processes in the past. We must ensure that appropriate Federal, State and local requirements and regulations are imposed at the

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proper point in the treatment system and are not used in a manner that may arbitrarily block land treatment projects. Whenever States insist upon placing unnecessarily stringent preapplication treatment requirements upon land treatment, such as requiring EPA secondary effluent quality in all cases prior to application on the land, the unnecessary wastewater treatment facilities will not be funded by EPA. This should encourage the States to re-examine and revise their criteria, and so reduce the cost burden, especially to small communities, for construction and operation of unnecessary or too costly facilities. The reduction of potentially toxic metals and organics in industrial discharges to municipal systems often is critical to the success of land treatment. The development and enforcement at the local level of pretreatment standards that are consistent with national pretreatment standards should be required as an integral part of any consideration or final selection of land treatment alternatives. In addition, land treatment alternatives must be fully coordinated with on-going areawide planning under section 208 of the Act. Section 208 agencies should be involved in the review and development of land treatment options.

Research will be continued to further improve criteria for preapplication treatment and other aspects of land treatment processes. This will add to our knowledge and reduce uncertainties about health and environmental factors. I am confident, however, that land treatment of municipal wastewaters can be accomplished without adverse effects on human health if proper consideration is given to design and management of the system.

INTER-OFFICE COORDINATION

The implementation of more recent mandates from the Safe Drinking Water Act (P.L. 93-532), the Toxic Substances Control Act (P.L. 94-469), and the Resource Conservation and Recovery Act of 1976 (P.L. 94-580) must be closely coordinated with the earlier mandate to recycle wastes and fully evaluate land treatment in P.L. 92-500. Agencywide coordination is especially important to the proper management of section 201 of P.L. 92-500, because the construction and operation of thousands of POTW's involve such a broad spectrum of environmental issues. A concerted effort must be made to avoid unilateral actions, or even the appearance of unilateral actions, which satisfy a particular mandate of one Act while inadvertently conflicting with a major Agency policy based upon another Act. The intention of P.L. 92-500, as it concerns land treatment, is compatible with the pertinent aspects of more recent environmental legislation.

ACTION REQUIRED

Each of you must exert maximum effort to ensure that the actions of your staffs reflect clearly visible encouragement of wastewater reclamation and recycling of pollutants through land treatment processes in order to move toward the national goals of conserving water and eliminating the discharge of pollutants in navigable waters by 1985.

This policy will apply to all future municipal construction grant activities, as well as all current grant applications in the Step 1 category that have not been approved as of this date. Detailed information and guidance for implementation of this policy is under preparation and will be issued in the near future.

TABLE 2-1

COMPARISON OF DESIGN FEATURES FOR LAND TREATMENT PROCESSES

Feature	Principal processes			Other processes	
	Slow rate	Rapid infiltration	Overland flow	Wetlands	Subsurface
Application techniques	Sprinkler or surface[a]	Usually surface	Sprinkler or surface	Sprinkler or surface	Subsurface piping
Annual application rate, ft	2 to 20	20 to 560	10 to 70	4 to 100	8 to 87
Field area required, acres[b]	56 to 560	2 to 56	16 to 110	11 to 280	13 to 140
Typical weekly application rate, in.	0.5 to 4	4 to 120	2.5 to 6[c] 6 to 16[d]	1 to 25	2 to 20
Minimum preapplication treatment provided in United States	Primary sedimentation[e]	Primary sedimentation	Screening and grit removal	Primary sedimentation	Primary sedimentation
Disposition of applied wastewater	Evapotranspiration and percolation	Mainly percolation	Surface runoff and evapotranspiration with some percolation	Evapotranspiration, percolation, and runoff	Percolation with some evapotranspiration
Need for vegetation	Required	Optional	Required	Required	Optional

a. Includes ridge-and-furrow and border strip.

b. Field area in acres not including buffer area, roads, or ditches for 1 Mgal/d (43.8 L/s) flow.

c. Range for application of screened wastewater.

d. Range for application of lagoon and secondary effluent.

e. Depends on the use of the effluent and the type of crop.

1 in. = 2.54 cm
1 ft = 0.305 m
1 acre = 0.405 ha

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ATTACHMENT B

TABLE 2-2

COMPARISON OF SITE CHARACTERISTICS FOR LAND TREATMENT PROCESSES

Characteristics	Principal processes			Other processes	
	Slow rate	Rapid infiltration	Overland flow	Wetlands	Subsurface
Slope	Less than 20% on cultivated land, less than 40% on noncultivated land	Not critical; excessive slopes require much earthwork	Finish slopes 2 to 8%	Usually less than 5%	Not critical
Soil permeability	Moderately slow to moderately rapid	Rapid (sands, loamy sands)	Slow (clays, silts, and soils with impermeable barriers)	Slow to moderate	Slow to rapid
Depth to groundwater	2 to 3 ft (minimum)	10 ft (lesser depths are acceptable where underdrainage is provided)	Not critical	Not critical	Not critical
Climatic restrictions	Storage often needed for cold weather and precipitation	None (possibly modify operation in cold weather)	Storage often needed for cold weather	Storage may be needed for cold weather	None

1 ft = 0.305 m

ATTACHMENT C

Example No. 2

Requirements. An existing 20-mgd activated sludge plant is required to upgrade its effluent quality to meet the following criteria:

BOD - 10 mg/l

SS - 10 mg/l

N - 3 mg/l

P - 0.5 mg/l

Alternatives. It is evident from a review of Table 2 that the only methods of treatment capable of providing the necessary degree of treatment are AWT-4 and irrigation. In this example, the cost of AWT-4 is compared with that of irrigation under varying conditions of conveyance distance (Case A) and land costs (Case B). Since secondary treatment is existing, activated sludge or aerated lagoon will not be necessary.

Case A - Consider a moderately favorable site for irrigation, a distance of 5 miles away from the existing treatment plant site. How much can be paid for land and have the irrigation system competitive with the AWT-4 system?

Table 12. COST COMPARISON FOR CASE A

Treatment method	Cost component	Cost ¢/1,000 gal.	Source
AWT-4	AWT-4	44.0	Figure 1
	Existing activated sludge adjustment	-(16.0)	Figure 1
	Total	28.0	
Irrigation	Irrigation system	24.0	Figure 1
	Aerated lagoon adjustment	-(4.3)	Figure 1
	Land cost	-(6.7)	Table 7
	Subtotal	13.0	
	Amount available for land = (28.0-13.0)	15.0	
	Total area, acres	4,300	Table 7
	Allowable cost/acre = $\frac{20 \text{ mgd } (15¢/1{,}000 \text{ gal.})(10^3)}{(0.0154)\ (4{,}300 \text{ acres})}$	4,500	

Conclusions. Under the assumed site conditions for the irrigation system, as much as $4,500 per acre could be paid for land and have the irrigation system competitive with AWT-4.

Case B - Consider a moderately favorable irrigation site at a cost of $2,000 per acre. How far away from the existing treatment plant could the site be and have the irrigation system competitive with AWT-4?

Table 13. COST COMPARISON FOR CASE B

Treatment method	Cost component	Cost ¢/1,000 gal.	Source
AWT-4	From Case A	28.0	Figure 1
Irrigation	Irrigation system	24.0	Figure 1
	Aerated lagoon adjustment	-(4.3)	Figure 1
	Conveyance cost	-(1.7)	Table 7
	Subtotal	18.0	
	Amount available for conveyance = (28.0 - 18.0)	10.0	--
	Allowable distance, miles	33	Table 4

Conclusions. Under the assumed site conditions for the irrigation system, wastewater could be conveyed as far as 33 miles and have irrigation be competitive with AWT-4. Special conditions such as river or highway crossings and easements may add substantial costs and reduce this distanc somewhat.

ATTACHMENT E

Guidance for Assessing Level of Preapplication Treatment

I. Slow-rate Systems (reference sources include Water Quality Criteria 1972, EPA-R3-73-003, Water Quality Criteria EPA 1976, and various state guidelines).

A. Primary treatment - acceptable for isolated locations with restricted public access and when limited to crops not for direct human consumption.

B. Biological treatment by lagoons or inplant processes plus control of fecal coliform count to less than 1,000 MPN/100 ml acceptable for controlled agricultural irrigation except for human food crops to be eaten raw.

C. Biological treatment by lagoons or inplant processes with additional BOD or SS control as needed for aesthetics plus disinfection to log mean of 200/100 ml (EPA fecal coliform criteria for bathing waters) - acceptable for application in public access areas such as parks and golf courses.

II. Rapid-infiltration Systems

A. Primary treatment - acceptable for isolated locations with restricted public access.

B. Biological treatment by lagoons or inplant processes - acceptable for urban lcoations with controlled public access.

III. Overland-flow Systems

A. Screening or comminution - acceptable for isolated sites with no public access.

B. Screening or comminution plus aeration to control odors during storage or application - acceptable for urban locations with no public access.

ATTACHMENT F

WEDNESDAY, FEBRUARY 11, 1976

federal register

PART IV:

ENVIRONMENTAL PROTECTION AGENCY

■

ALTERNATIVE WASTE MANAGEMENT TECHNIQUES FOR BEST PRACTICABLE WASTE TREATMENT

Supplement

ENVIRONMENTAL PROTECTION AGENCY

[FRL 482-6]

ALTERNATIVE WASTE MANAGEMENT TECHNIQUES FOR BEST PRACTICABLE WASTE TREATMENT

Supplement

Pursuant to Section 304(d)(2) of the Federal Water Pollution Control Act Amendments of 1972 (Pub. L. 92-500), the Environmental Protection Agency (EPA), gave notice on October 23, 1975 (40 FR 49598) that Alternative Waste Management Techniques for Best Practicable Waste Treatment has been published in final form. The final report contains the criteria for best practicable waste treatment technology and information on alternative waste management techniques.

The criteria for Best Practicable Waste Treatment for Alternatives employing land application techniques and land utilization practices required that the ground water resulting from land application of wastewater meet the standards for chemical quality [inorganic chemicals] and pesticides [organic chemicals] specified in the EPA Manual for Evaluating Public Drinking Water Supplies in the case of groundwater which potentially can be used for drinking water supply. In addition to the standards for chemical quality and pesticides, the bacteriological standards [microbiological contaminants] specified in the EPA Manual for Evaluating Drinking Water Supplies were required in the case of groundwater which is presently being used as a drinking water supply. The pertinent section of the EPA Manual for Evaluating Public Drinking Water Supplies was included as Appendix D of the Alternative Waste Management Techniques for Best Practicable Waste Treatment report.

Also specified in the Criteria for Best Practicable Waste Treatment is that "any chemical, pesticides, or bacteriological standards for drinking water supply sources hereafter issued by EPA shall automatically apply in lieu of the standards in the EPA Manual for Evaluating Public Drinking Water Supplies. The National Interim Primary Drinking Water Regulations were published in final form on December 24, 1975.

In consideration of the foregoing, Chapter II and Appendix D of Alternative Waste Management Techniques for Best Practicable Waste Treatment shall read as follows.

Dated: February 4, 1976.

RUSSELL E. TRAIN,
Administrator.

CHAPTER II

CRITERIA FOR BEST PRACTICABLE WASTE TREATMENT

Applicants for construction grant funds authorized by Section 201 of the Act must have evaluated alternative waste treatment management techniques and selected the technique which will provide for the application of best practicable waste treatment technology. Alternatives must be considered in three broad broad categories: treatment and discharge into navigable waters, land application and utilization practices, and reuse of treated wastewater. An alternative is "best practicable" if it is determined to be cost-effective in accordance with the procedures set forth in 40 CFR Part 35 (Appendix B to this document) and if it will meet the criteria set forth below.

(A) Alternatives Employing Treatment and Discharge into Navigable Waters. Publicly-owned treatment works employing treatment and discharge into navigable waters shall, as a minimum, achieve the degree of treatment attainable by the application of secondary treatment as defined in 40 CFR 133 (Appendix C). Requirements for additional treatment, or alternate management techniques, will depend on several factors, including availability of cost-effective technology, cost and the specific characteristics of the affected receiving water body.

(B) Alternatives Employing Land Application Techniques and Land Utilization Practices. Publicly-owned treatment works employing land application techniques and land utilization practices which result in a discharge to navigable waters shall meet the criteria for treatment and discharge under Paragraph (A) above.

The ground water resulting from the land application of wastewater, including the affected native ground water, shall meet the following criteria:

Case I: The ground water can potentially be used for drinking water supply.

(1) The maximum contaminant levels for inorganic chemicals and organic chemicals specified in the National Interim Primary Drinking Water Regulations (40 CFR 141) (Appendix D) for drinking water supply systems should not be exceeded except as indicated below (see Note 1).

(2) If the existing concentration of a parameter exceeds the maximum contaminant levels for inorganic chemicals or organic chemicals, there should not be an increase in the concentration of that parameter due to land application of wastewater.

Case II: The ground water is used for drinking water supply.

(1) The criteria for Case I should be met.

(2) The maximum microbiological contaminant levels for drinking water supply systems specified in the National Interim Primary Drinking Water Regulations (40 CFR 141) (Appendix D) should not be exceeded in cases where the ground water is used without disinfection (see Note 1).

Case III: Uses other than drinking water supply.

(1) Ground water criteria should be established by the Regional Administrator based on the present or potential use of the ground water.

The Regional Administrator in conjunction with the appropriate State officials and the grantee shall determine on a site-by-site basis the areas in the vicinity of a specific land application site where the criteria in Case I, II, and III shall apply. Specifically determined shall be the monitoring requirements appropriate for the project site. This determination shall be made with the objective of protecting the ground water for use as a drinking water supply and/or other designated uses as appropriate and preventing irrevocable damage to ground water. Requirements shall include provisions for monitoring the effect on the native ground water.

(C) Alternatives Employing Reuse. The total quantity of any pollutant in the effluent from a reuse project which is directly attributable to the effluent from a publicly-owned treatment works shall not exceed that which would have been allowed under Paragraphs (A) and (B) above.

NOTE 1.—Any amendments of the National Interim Primary Drinking Water Regulations and any National Revised Primary Drinking Water Regulations hereafter issued by EPA prescribing standards for public water system relating to inorganic chemicals, organic chemicals or microbiological contamination shall automatically apply in the same manner as the National Interim Primary Drinking Water Regulations.

APPENDIX D

GROUND WATER REQUIREMENTS

The following maximum contaminant levels contained in the National Interim Primary Drinking Water Regulations (40 CFR 141) are reprinted for convenience and clarity. The National Interim Primary Drinking Water Regulations were published in final form in the FEDERAL REGISTER on December 24, 1975. In accordance with the criteria for best practicable waste treatment, 40 CFR 141 should be consulted in its entirety when applying the standards contained therein to wastewater treatment systems employing land appplication techniques and land utilization practices.

Maximum contaminant levels for inorganic chemicals. The following are the maximum levels of inorganic chemicals other than fluoride:

Contaminant:	*Level (milligrams per liter)*
Arsenic	0.05
Barium	1.
Cadmium	0.010
Chromium	0.05
Lead	0.05
Mercury	0.002
Nitrate (as N)	10.
Selenium	0.01
Silver	0.05

The maximum contaminant levels for fluoride are:

Temperature degrees Fahrenheit [1]	Degrees Celsius	Level (milligrams per liter)
53.7 and below	12 apd below	2.4
53.8 to 58.3	12.1 to 14.6	2.2
58.4 to 63.8	14.7 to 17.6	2.0
63.9 to 70.6	17.7 to 21.4	1.8
70.7 to 79.2	21.5 to 26.2	1.6
79.3 to 90.5	26.3 to 32.5	1.4

[1] Annual average of the maximum daily air temperature.

Maximum contaminant levels for organic chemicals. The following are the maximum contaminant levels for organic chemicals:

	Level (milligram per liter)
(a) Chlorinated hydrocarbons:	
Endrin (1,2,3,4,10,10-Hexachloro-6,7 - epoxy - 1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,endo - 5,8-dimethano naphthalene)	0.0002
Lindane (1,2,3,4,5,6 - Hexachlorocyclohexane, gamma isomer)	0.004
Methoxychlor (1,1,1-Trichloro-2,2-bis [p-methoxyphenyl] ethane)	0.1
Toxaphene ($C_{10}H_{10}Cl_8$ - Technical chlorinated camphene, 67 to 69 percent chlorine)	0.005
(b) Chlorophenoxys:	
2,4-D (2,4-Dichlorophenoxyacetic acid)	0.1
2,4,5-TP Silvex (2,4,5-Trichlorophenoxypropionic acid)	0.01

Maximum microbiological contaminant levels. The maximum contaminant levels for coliform bacteria, applicable to community water systems and non-community water systems, are as follows:

(a) When the membrane filter technique pursuant to § 141.21(a) is used, the number of coliform bacteria shall not exceed any of the following:

(1) One per 100 milliliters as the arithmetic mean of all samples examined per month pursuant to § 141.21 (b) or (c);

(2) Four per 100 milliliters in more than one sample when less than 20 are examined per month; or

(3) Four per 100 milliliters in more than five percent of the samples when 20 or more are examined per month.

(b) (1) When the fermentation tube method and 10 milliliter standard portions pursuant to § 141.21(a) are used, coliform bacteria shall not be present in any of the following:

(i) More than 10 percent of the portions in any month pursuant to § 141.21 (b) or (c);

(ii) Three or more portions in more than one sample when less than 20 samples are examined per month; or

(iii) Three or more portions in more than five percent of the samples when 20 or more samples are examined per month.

(2) When the fermentation tube method and 100 milliliter standard portions pursuant to § 141.21(a) are used, coliform bacteria shall not be present in any of the following:

(i) More than 60 percent of the portions in any month pursuant to § 141.21 (b) or (c);

(ii) Five portions in more than one sample when less than five samples are examined per month; or

(iii) Five portions in more than 20 percent of the samples when five or more samples are examined per month.

(c) For community or non-community systems that are required to sample at a rate of less than 4 per month, compliance with Paragraphs (a), (b) (1), or (2) shall be based upon sampling during a 3 month period, except that, at the discretion of the State, compliance may be based upon sampling during a one-month period.

[FR Doc.76-3932 Filed 2-10-76;8:45 am]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 17 1978

OFFICE OF WATER AND
HAZARDOUS MATERIALS

Program Requirements Memorandum
PRM No. 79-4

Subject: Discount Rate

From: John T. Rhett, Deputy Assistant Administrator
for Water Program Operations (WH 546) John T Rhett

To: Water Division Directors
Regions I - X

Enclosed is a copy of the notice published by the Water Resources Council of the new discount rate of 6 7/8 percent. The new rate was effective as of October 1, 1978. Cost-effectiveness analyses in new facility planning starts are to be based upon the rate of 6 7/8 percent.

We have arranged to distribute the enclosed information to consulting engineers through the newsletter of the Consulting Engineers Council. Please distribute copies of this information to the States for use in their programs.

Enclosure

[84 0-01-M] 50276

WATER RESOURCES COUNCIL

PRINCIPLES AND STANDARDS FOR PLANNING WATER AND RELATED LAND RESOURCES

Change in Discount Rate

Notice is hereby given that the interest rate to be used by Federal agencies in the formulation and evaluation of plans for water and related land resources is 7⅞ percent for the period October 1, 1978 through and including September 30, 1979.

The rate has been computed in accordance with Chapter IV, D., "The Discount Rate" in the "Standards for Planning Water and Related Land Resources" of the Water Resources Council, as amended (39 FR 29242), and is to be used by all Federal agencies in plan formulation and evaluation of water and related land resources projects for the purpose of discounting future benefits and computing costs, or otherwise converting benefits and costs to a common time basis.

The Department of the Treasury on October 19, 1978 informed the Water Resources Council pursuant to chapter IV, D., (b) that the interest rate would be 7⅞ percent based upon the formula set forth in chapter IV, D., (a): "* * * the average yield during the preceding Fiscal Year on interest-bearing marketable securities of the United States which, at the time the computation is made, have terms of 15 years or more remaining to maturity * * *." However, chapter IV, D., (a) further provides "* * * that in no event shall the rate be raised or lowered more than one-quarter of 1 percent for any year." Since the rate in fiscal year 1978 was 6⅝ percent (42 FR 58232), the rate for fiscal year 1979 is 6⅞ percent.

Dated: October 24, 1978.

LEO M. EISEL,
Director.

[FR Doc. 78-30408 Filed 10-26-78; 8:45 am]

[1505-01-M] 50537

WATER RESOURCES COUNCIL

PRINCIPLES AND STANDARDS FOR PLANNING WATER AND RELATED LAND RESOURCES

Change in Discount Rate

Correction

In FR Doc. 78-30408 appearing at page 50276 in the issue for Friday, October 27, 1978, in the first paragraph of the document, the interest rate referred to as "* * * 7⅞ percent" should have read "* * * 6⅞ percent * * *".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 28 1978

Construction Grants
Program Requirements Memorandum
PRM No. 79-5

SUBJECT: Construction Incentive Program

FROM: John T. Rhett, Deputy Assistant Administrator
for Water Program Operations (WH-546)

TO: Regional Administrator
Regions I-X

Purpose

This memorandum provides guidance and policy pertaining to the application of the construction incentive (CI) clause to the construction phase of a project (Step 3).

Discussion

The construction incentive program provides a mechanism by which contractors on construction grant projects can be motivated to use their construction expertise to improve contract performance and thereby create an overall reduction in the total cost of the contract. This motivation is commonly achieved through monetary incentives and its success has been well demonstrated in direct procurement by other Federal agencies and in private enterprise.

Section 212(2)(c) of the Federal Water Pollution Control Act Amendments of 1972 requires the use of a cost-effective approach to wastewater treatment projects. This requirement is being met primarily by applying a cost-effectiveness analysis in the Step 1 project and value engineering in Step 2. It is now clear that the application of a cost reduction incentive program, which is commonly called value engineering in other Federal agencies, to a project during construction can also be potentially effective in reducing project costs.

Because experience in construction incentive approaches under a grant program is limited, program participation by the grantee and contractors is voluntary. However, technical and cost data for each construction incentive change proposal (CICP) submitted by the contractor must be carefully reviewed. Accordingly, necessary arrangements will be made with the Corps of Engineers (COE) to provide the needed expertise and resources for the CICP review process.

Policy:

By this memorandum, the grantee may include a CI clause, (see attached), as part of the construction bid package using the procedures described in this memorandum.

In order to ensure that each CICP will be properly reviewed and implemented, the number of projects to have the CI clause should be limited by the Region. The actual number of CI clauses authorized will depend on a number of factors determined through experience in implementing the program, including the time needed to review and process each CICP and the nature of the CICP's received. In addition, the use of the CICP clause is limited to projects having a Step 3 eligible cost exceeding $10 million. The Region should report to Headquarters whenever a contract is allowed to include the CI clause. Headquarters concurrence is necessary for approval or rejection of each major CICP received. (See A-3 under Procedure).

The prime contractor and his subcontractors may participate in the construction incentive program when the CI clause is part of the approved bid package. However, participation of subcontractors must be through the prime contractor. In addition, the sharing arrangement must be mutually agreed upon by the prime contractor and the subcontractor prior to the submittal of a construction incentive change proposal (CICP).

To ensure the program's effectiveness and integrity, individuals and firms who have prior involvement in the project design or in other value engineering activity prior to Step 3 grant are not eligible to participate, directly or indirectly, in the development and preparation of a CICP or monetary sharing of any resulting savings.

While the CICP is being processed, the contractor should continue the construction activity as scheduled. The additional engineering fees associated with the evaluation and implementation of the CICP are grant eligible.

Implementation:

Effective immediately, the grantee may include the EPA/CI clause as part of the construction bid package for projects having a Step 3 eligible cost of more than $10 million when approved in accordance with this memorandum.

Procedure:

A. Inclusion of the CI Clause in a Contract

The grantee may submit a written request for inclusion of the CI clause in a contract. Ideally, such requests should be made prior to applying for the Step 3 grant. The Region should respond to such requests in writing and when the request is approved, a copy of the approval correspondence should be forwarded to Headquarters for information.

B. Approval of a CICP

When a CICP is submitted by the contractor in response to the CI clause, the grantee will proceed with the following procedural steps:

1. Expeditiously distribute copies of the CICP to the following offices for review:

   a. 3 copies to the Regional EPA
   b. 1 copy to the State agency
   c. 1 copy to the project designer

2. The Region will forward 1 copy of the CICP to Headquarters and 1 copy to the appropriate office of the COE for technical and cost review.

3. When a CICP having a potential gross cost reduction of more than $500,000 is received, the Region should immediately notify Headquarters. Upon receipt of the notice, a special team of Headquarters staff with the necessary construction experience will be designated to provide assistance to the grantee and Region in the review and approval of the CICP.

4. The grantee will provide follow-up coordination with the project designer, State and EPA.

5. The grantee will review all comments and, when appropriate, call a special meeting with all concerned parties to resolve any outstanding comments.

6. Subject to State and EPA concurrence, the grantee will notify the contractor in writing of the conclusion of the meeting and the decision made on the CICP.

Construction Incentive Clause
The EPA Construction Grants Program

I. Purpose

This clause defines a "construction incentive change proposal" (CICP) and establishes the policy and procedures for the application of CICP's in the Step 3 grant process of the EPA Construction Grants Program.

II. CICP

A. Definition: A CICP is a formally written proposal for a change order during the construction of a wastewater treatment project funded under the EPA Construction Grants Program. A CICP must be initiated, developed and identified as such by the contractor or his subcontractor. A CICP must result in a gross capital saving of $50,000 or more.

A CICP must result in a net capital cost reduction while causing no increase in the total life cycle cost of the project and meeting the following conditions.

1. The required function, reliability and safety of the project will be maintained.

2. The proposed change will not result in any contract rebidding.

3. The proposed change must be in compliance with Section 204(a)(6) of the Federal Water Pollution Control Act Amendments of 1972 which prohibits proprietary and restrictive specifications for bids in connection with construction grant projects.

4. The proposed change will not cause undue interruption of the contract work.

5. The proposed change must be in compliance with local permits and regulations.

B. Applicability: Subject to the EPA's approval this clause applies to all contracts for the construction of wastewater treatment projects funded under the EPA Construction Grants Program (Step 3 grants).

C. Content: A CICP must contain pertinent information and supporting documents for evaluation by the involved contracting authority. As a minimum, the following information should be included.

1. Name of individuals associated with the development and preparation of the CICP.

2. A detailed description and duly signed plans and specifications as presently designed and the proposed changes. Clear identification of any advantages and disadvantages for each change.

3. A detailed procedure and schedule for implementing the proposed change. This should include all necessary contract amendments. Also indicated must be the latest date the CICP must be approved for implementation.

4. A summary of estimated costs to include the following:

   a. project construction costs before and after the CICP. This should be a detailed estimate identifying the following items for each trade involved in the CICP:

      1. quantities of materials and equipment
      2. unit prices of materials and equipment
      3. labor hours and rates for installation
      4. subcontractor and prime contractor mark-ups

   b. operation and maintenance costs before and after the CICP;

   c. costs for implementing the CICP not included in item 4a above;

   d. contractor's share of the savings based on paragraph III below;

   e. other data as required in section 35.938-5(b)(c) and (d) of the construction grants regulations;

   f. time required for executing the proposed change;

To the extent indicated below, contractors may restrict the Environmental Protection Agency's and the project owner's use of any construction incentive change proposal or the supporting data submitted pursuant to this program. Suggested wording for inclusion in CICP's is provided below:

> "This data furnished pursuant to the construction incentive clause of contract _____ shall not be disclosed beyond that which is necessary to accomplish the review, or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering proposal submitted under said clause. This restriction does not limit the Government's right to use information contained in this data if it is or has been obtained, or is otherwise available, from the contractor, or from

another source, without limitations. If such a proposal is accepted by the owner under said contract after the use of this data in such an evaluation, the United States Environmental Protection Agency and the project owner shall have the right to duplicate, use, and disclose any data reasonably necessary to the full utilization of such proposal as accepted, in any manner and for any purpose whatsoever, and have others so do."

The grantee may, subject to approval by the State and EPA, modify, accept or reject the CICP. However, if a CICP were modified or were not acted upon within the time frame specified in the CICP, the contractor may withdraw, in part or in whole, the CICP. In any event, the grantee will not be liable for the cost of developing the CICP withdrawn or rejected.

When a CICP is accepted by the grantee, the processing procedure specified under Section 35.938-5 for change orders should be used and approval of the CICP by the State and EPA is required. When a CICP is rejected, the contractor may not appeal to EPA.

III. Sharing Provisions

Construction Cost Sharing

Upon acceptance of a CICP, the contractor will share the net capital savings pursuant to this contract based on the formula below. Computation for the net savings is to be based on the following formula:

Net Savings = Initial contract cost - (revised contract cost + CICP development cost + CICP implementation cost)

The CICP implementation cost should include, when appropriate, consultant's fee for reviewing and redesigning the changes. However, costs for processing the CICP incurred by the grantee, State and EPA are excluded.

The contractor's cost for developing the CICP is limited to that directly associated with the preparation of the CICP package. When approved, such costs will be reimbursed to the contractor. However, any costs which cannot be satisfactorily substantiated will be rejected and will not be subject to reimbursement.

Sharing Formula

a. when the total net savings based on the computation above is $1 million or less, the contractor will receive 50% of the saving

b. when the total cumulative net savings exceed $1 million, the contractor's share will be computed based on the following formula:

$$y = .2x + 300,000$$

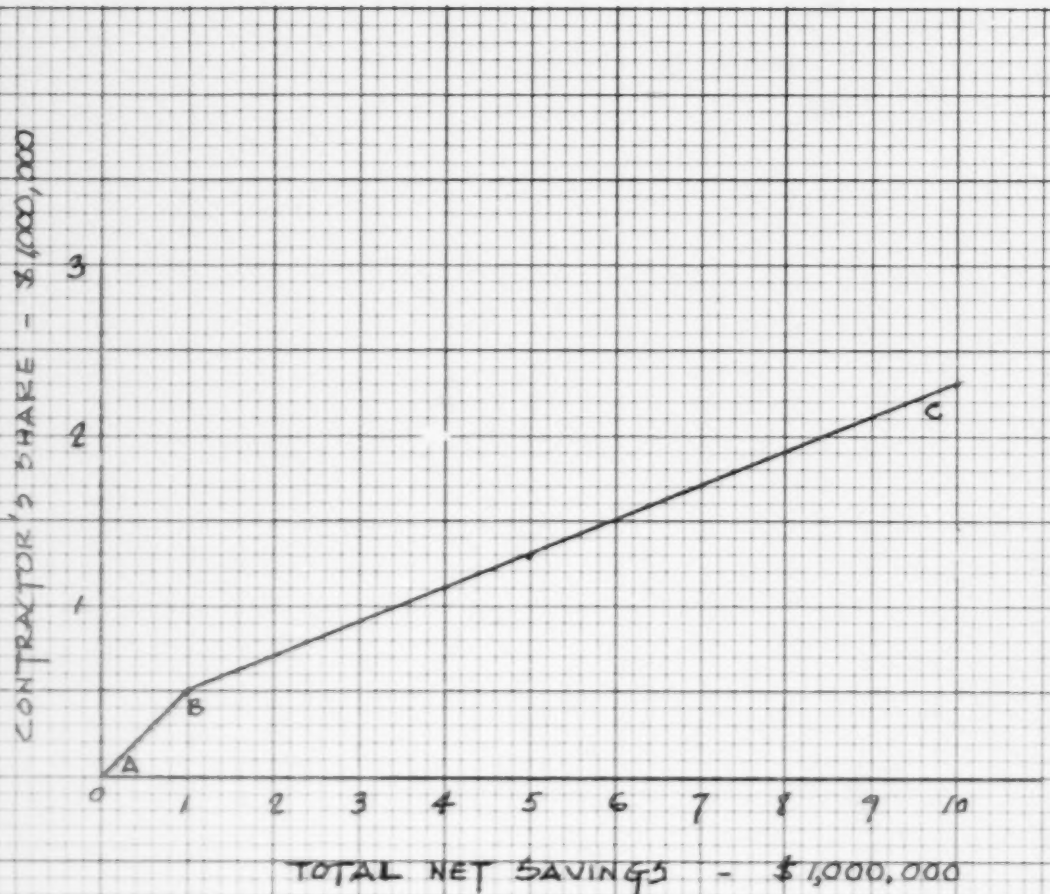
where:

y = contractor's share in dollars
x = total net saving in dollars

For example, if the total net saving is $3.572 million --

$$y = .2(\$3,572,000) + 300,000$$

$$= \$1,014,400$$



COST SHARING CURVE

CONTRACTOR'S SHARE VS NET SAVINGS

FORMULA : A-B $Y = .5X$

B-C $Y = .2X + 300,000$

WHERE : X AND Y IN DOLLARS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 8 1979

OFFICE OF WATER AND
HAZARDOUS MATERIALS
Construction Grants
Program Requirements Memorandum
PRM No. 79-6

MEMORANDUM

Subject: Priority List Guidance for the Development and Management of FY 1980 State Project Priority Lists

From: for John T. Rhett, Deputy Assistant Administrator for Water Program Operations (WH-546)

To: Regional Administrators

PURPOSE

This memorandum sets forth the policy for development and management of FY 1980 States project priority list that is required to be submitted under Sections 106, 216 and 305 of the Clean Water Act (Act). This policy statement includes guidance for implementing the new provisions of the Act and the 1978 revision to the Construction Grant Regulations.

DISCUSSION

The recently enacted Clean Water Act and the revised Construction Grant regulations which were published on September 27, 1978, make it necessary to modify many of the processes and procedures used for the development and management of State priority lists. Some change was required for development of the FY 1979 priority list and many States are both familiar with and presently incorporating other changes that are required by the newly revised regulation.

In revising the priority system and preparing the FY 80 project priority list, it is expected that the States will comply fully with the revised Construction Grant Regulations. The Congress was clear in its mandate that the State project priority list be made a useful and useable management tool. This can only be accomplished through the timely submission of valid and complete information.

Following revision, the State priority system must be submitted to the Regional Administrator for review and approval. The Regional Administrator will issue written notification that the system is designed to obtain compliance with the enforceable requirements of the Act.

The following guidance supersedes the requirements listed in PRM 78-13. All of the new regulatory requirements that must be incorporated into the State priority system prior to preparing the FY 80 project priority lists are discussed in this guidance. The Regions should insure that this guidance is understood by the States and closely coordinate the review processes so that the program can move expeditiously without disruption.

POLICY

1. Submission and review of priority lists.

Under Section 35.563, the State must submit a preliminary project priority list to the Regional Administrator by May 1 of each year for review. A final project priority list must be submitted for review by the Regional Administrator before July 15. The Regional Administrator will review the final State project priority list within 30 days of submission to ensure compliance with the approved State priority system and this policy memorandum. Questionable projects should be identified during this 30 day period. No priority list is to be accepted as final by the Region until all of the required information has been received for each project and the public participation requirements have been met (see §35.915(d) and 35.915(e). The Regional Administrator must notify the State in writing upon final acceptance of the priority list. No project may be funded from the State priority list until the Regional Administrator has issued the written notification of acceptance and the accepted list has been entered into the Grants Information Control System (GICS).

After receipt, the preliminary State priority list should be entered into GICS. The GICS files should be updated as changes and modifications are made. The final list is to be generated from the GICS file. Following acceptance by the Regional Administrator, the information contained in the GICS file will be considered as the official list for funding and management purposes.

2. Key Elements.

A. State project priority system - a program and action plan that describes the methodology used to rate and rank projects that are considered eligible for assistance. The system should set forth the administrative, management, and public participation procedures required to develop and revise the State project priority

list. The system should be clear in its stated priority determinants, incorporate reasonably understandable mathematical computation processes and be used consistently for rating all projects included on the State project priority list especially to satisfy the public participation requirements of 40 CFR 25.

B. State project priority list - a listing of projects in order of priority for which Federal assistance is expected during a five-year planning period starting with the beginning of the next fiscal year. This list must be consistent with the most recently published Needs Survey inventory (see §35.915(b)). The list will include both a fundable and planning portion. The two portions of the list are contiguous and distinguished only by an imaginary funding line drawn immediately below the last project that is planned for funding with available funds during the first year of the five-year period.

C. Project rating criteria - Under §35.915(a)(1), the State must base its project priority system on the severity of the pollution problem, the existing population affected by tne project, and the need for preservation of high quality waters. At the State's option, projects may be rated by specific needs categories. The State may give additional priority points for Step 2, Step 3 and combined Step 2+3 projects which meet the innovative and alternative technology guidelines as stated in § 35.915(a)(1)(iii) of the Construction Grant Regulations. The State may also consider the needs of small and/or rural communities. Other criteria, consistent with these listed, may be considered. The State may not consider the project area's development needs, economic factors, the geographical region within the State, or future population growth projections.

In addition to the above, the Agency has determined that a rigorous review is necessary for projects designed for treatment more stringent that secondary. The Appropriations Conference Committee agreed that grant funds may be used for projects providing greater than secondary only if the incremental cost of the advanced treatment is $1 million or less, or if the Administrator personally determines that advanced treatment is required and will result in significant water quality and public health improvements. The projects or portions of projects which do not meet these criteria should be given a low priority and deferred. Detailed guidance implementing these requirements is in preparation.

D. Project ranking - A numerical ordering of projects that may be eligible for funding under the Clean Water Act. This ranking is determined by the State project priority rating system. The rating criteria used to establish the project ranking must be clearly delineated in the approved State priority system and applied consistently to all projects included on the priority list.

E. Fundable portion - that portion of the priority list which includes projects scheduled for award of grant assistance during the first year (funding year) of the five-year planning period. The total expected grant assistance for all projects included in the fundable portion of the list need not exceed the total funds expected to be available during the year less all applicable reserves. The fundable portion of the list may not necessarily contain a sufficient number of projects to use all available funds. The projects scheduled for funding beyond the current fiscal year constitute the planning portion of the priority list.

F. Planning portion - that portion of the State priority list containing all of the projects outside the fundable portion of the list that may, under anticipated allotment levels, receive funding during the five-year planning period. At the States option, projects may be included beyond the five-year planning period. As a minimum, this list must include:

(i) All future Step 3 projects that will be generated from currently active Step 2 projects or Step 2 projects that are included on the list, where it is expected that the associated Step 3 grant will be awarded within the five-year period.

(ii) All future Step 2 and Step 3 projects that will be generated from completed or currently active Step 1 projects or Step 1 projects that are included on the fundable list, where it is expected that the associated Step 2 or Step 3 grant(s) will be awarded within the five-year period.

(iii) All Step 1 projects anticipated to be funded during the second year of the five-year planning period.

3. Funding assumptions.

Guidance for making funding assumptions that are necessary for development of the five-year planning list will be issued immediately upon approval and release of the President's Budget, expected January 20, 1979. Adjustments may be made annually as actual appropriations are determined.

4. Obligation of funds.

Allotted funds may be obligated at any time during the funding year, beginning on the first day of the fiscal year or at such time that the Regional Administrator accepts the States project priority list and it is entered into GICS in its final form, whichever is later. No grant(s) may be made after the last day of any fiscal year in the absence of a revised and updated priority list that has been submitted, reviewed and accepted as provided in §35.915(e).

5. Required priority list information.

The following information is required for all projects on the State project priority list, except as otherwise noted. The Grants Information Control System (GICS) transaction number is included in parentheses for clarity after each listing. The Region should refer to the GICS data element dictionary for the precise definition of each element.

- State assigned EPA project number (TN 01, 54, 03).
- Legal name and address of applicant if known (TN 12, 51, 14, 52).
- Short project name or description (TN 20).
- Priority rating and rank of each project, based on current priority system (TN H8, 59).
- Project step number (TN 87).
- Relevant Needs authority/facility number (TN 32). This is a unique number assigned in connection with the Needs Survey which identifies the facility and the cognizant WWT authority. If an authority/facility number has not been assigned, enter "NO NUMBER". If multiple facilities are applicable within a single authority, enter the first six positions followed by "XXX". If multiple authorities exist, then enter the word "MULTIPLES" instead of the nine digit authority facility number.
- Parent project number (i.e., EPA project number for the predecessor project) (TN B2).
- For Step 2, 3, or 2+3 projects, code indicating an alternative system for small community (TN 33). Enter "D" if the project is for a highly dispersed section of a larger community

or "R" if the project is for a rural community with a population of 3,500 or less. This requirement does not apply to any State in which the reserve is not mandatory or which has not voluntarily established an appropriate set aside (see §35.915 (e)).

- For Step 2, 3, or 2+3 projects, that amount (if any) of the eligible cost to apply to innovative processes (TN Y7) and alternative techniques (TN Y8). This information is necessary to determine utilization of the I/A reserve.

- The date that the project is expected to be certified by State to EPA for funding (TN A5). This date can be used to further define whether or not the project is on the fundable or planning portion of the priority list.

- For Step 3 or 2+3 projects, the total eligible cost subdivided by Needs Categories (TN Y0, Y1, Y2, Y3, Y4, Y5, Y6). Transactions numbered Y0 through Y6 are reserved for the cost information associated with needs categories I, II, IIIA, IIIB, IVA, IVB and V respectively. This information is required for all projects on the fundable list. The information concerning categories IIIB, IVA, IVB and V is required. At the option of the State, however, the aggregate amount for projects or portions of projects in these later four categories can be stored in data element Y3.

- Total eligible cost of the project (TN 29).

- Estimated EPA assistance (TN H7). This estimate should include only the portion fundable at 75 percent of the eligible cost of the project. Expected grant increase amounts for innovative or alternative processes and techniques should not be included.

- Enforceable requirement to be satisfied by this project (TN Z1). The enforceable requirements must be described by one of the following combinations of codes. Transaction number Z1 is a two position data field. The first position of this field must include one of the four alphabetic characters as follows:

    A -- Project satisfies the conditions or limitations of a 402 or 404 permit which, if violated, could result in the issuance of a compliance order or initiation of a civil or criminal action under Section 309 of the Clean Water Act. (Include primary permit number in area reserved for TN C2).

B -- Permit has not been issued but project satisfies a condition or limitation which would be included in the permit when issued.

C -- Permit is not applicable but project satisfies a requirement anticipated to be necessary to meet applicable criteria for best practicable waste treatment technology (BPWTT).

D -- Project does not meet an enforceable requirement of the Act.

The second position of TN Z1 is to be used to further describe the project. The two following alphabetic characters are included for this purpose:

Y -- The project in its entirety satisfies the enforceable requirements of the Act for the condition stated in the preceding character position.

P -- Portions of the project do not satisfy the enforceable requirements of the condition stated in the preceding character position.

6. Project bypass.

Although readiness for funding may not be used as a priority criterion for rating projects, the ability to bypass projects not yet ready to proceed according to schedule is an integral part of priority list management. Projects initially scheduled for funding but which are determined by the State and agreed to by the Regions as not ready for funding before the end of the fundable year may be bypassed in favor of the highest ranking project included on the planning portion of the list as long as the approved priority system has such a procedure to bypass and, under specific conditions, reinstate the bypassed project(s).

Before bypassing any project, the State must notify the applicant and NPDES authorities. The State must then advise EPA that the bypassed project(s) will not be ready during the funding period. The State must also assure that the desired bypass is in full conformance with all State and local regulatory requirements. Projects that are bypassed should retain their relative priority rating for possible reinstatement or consideration on future funding lists. Projects that are bypassed will be replaced by the highest ranking priority projects which meet the enforceable requirements of the Act. Project applicants that are bypassed because they are

not ready to proceed must be promptly notified. A project must be reinstated if it is subsequently determined that it can be made ready for funding during the fundable year and uncommitted funds are available to fully fund the project. Projects that are considered for funding through the bypass process must have previously met all public participation requirements.

7. Public participation.

Before the State submits its annual project priority list to the Regional Administrator for review, the State shall insure that adequate public participation has taken place as required by §35.915(d). A public hearing must be held to discuss the proposed State priority list and any revisions that were made to the State priority system. This public hearing may be conducted jointly with any regular public meeting of the State agency providing that the public (statewide) receive adequate and timely notice of the meeting including an opportunity to obtain and review a copy of the proposed priority list. Attendees at the meeting must be allowed to express their views concerning the list. The State priority system must describe the public participation policy and procedures which are applicable. The States policy must conform to the requirements of 40 CFR 25.

8. Priority list update.

Because of the definition of the fundable list (adopted in FY 79) the target certification dates and estimated grant amount for projects on the fundable and planning portions of the list must be kept current at all times. At a minimum, a complete review of the priority list, including the planning portion, should be performed on a quarterly basis. Any changes to the list should immediately be entered into GICS. Regions should assure that the bypass provisions and public participation requirements have been met whenever changes are made to the priority lists.

9. 25% Provision for Projects in Categories IIIB (Sewer System Replacement or Major Rehabilitation), IVA (New Collectors and Appurtenances), IVB (New Interceptors and Appurtenances), and V (Correction of Combined Sewer Overflows).

All projects or parts of projects on the fundable list which are in these categories will be reviewed by the Regional Administrator to determine if they meet the enforceable requirements of the Act. Projects which meet the enforceable requirements are acceptable on the priority list. Projects in those categories that do not meet an enforceable requirement will be further examined under the §35.915(g)(2). This review process will continue until the aggregate of projects in these categories total not more than 25 percent of

the current year allotment for each State. Projects or portions of projects which would require use of funds beyond the 25 percent level may be removed in accordance with §35.915(g)(1).

10. Management of priority list reserves that are subject to reallotment if not used for their intended purpose.

Regions should assure that sufficient projects appear on the fundable list to fully utilize the reserve for innovative and alternative technology grant increases and the reserve for alternative systems for small communities before these funds are lost to reallotment. To accomplish this objective, the State may assign a higher priority to those Step 2, Step 3 and combined Step 2+3 project utilizing processes and techniques meeting the innovative and alternative guidelines (see §35.915(a)(1)(iii)). Under §35.915-1(e), the size of community may also be used to establish a higher priority for alternative systems for small community projects in order to preclude any potential loss of the reserved funds. When it is determined that a sufficient number of projects are not included to fully use these reserves, the State should be so advised.

11. Priority list/Needs survey relationship.

The State project priority list should be derived from and be consistent with the most recently published State Needs Inventory prepared in accordance with Section 516(b)(1)(B) of the Clean Water Act. The "Relevant Needs Authority/Facility Number" mentioned in item 5 above provides the direct linkage between the priority list and the Needs Survey.

12. Priority list/WQM plans relationship.

In developing its annual priority list, the State must consider the construction grant needs and priorities set forth in certified and approved State and areawide water quality management (WQM) plans as provided in Sections 35.915(a) and 35.915(c)(1). In the information about the priority list which the State circulates before the public hearing required by §35.915(d), the State shall indicate how it considered such WQM information. Information regarding the projects consistency with approved water quality management plans must be provided as part of the priority list submission. Where plans have not been approved a statement should be provided to indicate why the project appears on the priority list.

13. Priority List/Financial Management System Relationship.

The Financial Management System (FMS) provides for the recording and reporting of construction grant obligations, outlays and certain related balances by Source of Funds, Program Element/ Account Number and other interest categories. The Program Element/ Account Numbers relate specifically to year of fund appropriation accounting and will be used to track the set-aside residuals. Two accounts have been established as of this time, one for State Management Assistance (ABA 880) and the other for Innovative processes (ABA 881) funds. Account Number ABA 881 will be used only for tracking the 1/2 of 1 percent reserve (see §35.915-1(b)). Two additional accounts are presently planned to provide for alternative technology and rural or small community set-asides. The account numbers and additional detail will be provided by the Financial Systems Branch.

The accounting information that is available from FMS is not a duplication of data contained in GICS elements 19, 31, Y7 and Y8. The data in the GICS elements are estimates made at the time of preparing the State project priority list. The data in the FMS account fields represents actual obligation made at time of project grant award. Both sources of information, FMS and GICS, will be used to track and determine availability of funds for each of the regulatory funding set-aside and reserve categories.

ASSISTANCE

The Priorities and Needs Assessment Branch has prepared Cross Reference Index listing sorted by Facility Name, GICS Number, Needs Number and NPDES Number. Upon completion in October, 1978, these listings were forwarded to the Regions for use in preparing and reviewing the FY 79 State priority list. In addition, the Branch is prepared to assist the Regions and/or States where possible in preparing the required Priority lists. If it becomes apparent that any State is experiencing difficulty in making either the revisions to their Priority System or timely preparation of the FY 80 project priority list, please advise me or James A. Chamblee. It is imperative that the priority list development be well managed for FY 1980 and beyond. We shall be reluctant to concur with any deviations in the future which extends a priority list beyond the end of a fiscal year.

Please direct questions concerning this program guidance memorandum to James Chamblee or Joseph Easley. They may be reached by FTS 426-4443.

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